

THE PHALANGIDA OF CALIFORNIA

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The Phalangida, or Opiliones as they are called by some writers, constitute a very distinct order of the Arachnida. The body is seen to be of two large parts broadly connected to each other; the anterior part is the cephalothorax, the posterior part is the abdomen. The cephalothorax is of one piece above, but usually shows one or two incomplete transverse furrows or grooves. There is also a furrow along each side and it is considered that the part beyond

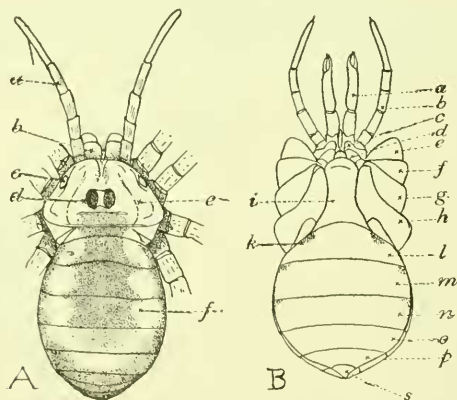


Figure 147. Dorsal and ventral views of a Phalangid.

A, Dorsal view: a, palpus; b, mandible; c, lateral pore; d, eye tubercle; e, cephalothorax; f, abdomen. B, Ventral view: a, mandible; b, palpus; c, maxilla; d, pedal lobe; e, coxa I; f, coxa II; g, coxa III; h, coxa IV; i, advancement of abdomen; k, spiracle; l, 2nd ventral segment; m, 3rd ventral segment; n, 4th ventral segment; o, 5th ventral segment; p, 6th ventral segment; s, anal plate.

the furrow is the pleura. On this pleural portion near the anterior end is a small somewhat circular depression with a membranous bottom, this is the lateral pore. On the middle line of the cephalothorax and toward the anterior margin is a small rounded elevation with a simple eye on each lateral face, this is the eye-tubercle or eye-eminence. The abdomen is quite broad, never slender, and never depressed; usually quite convex above.

Abdomen is considered to consist of eight segments, but in many forms the basal and median ones are poorly defined on the dorsum; on the venter there are usually six distinct segments. The underside of the cephalothorax is occupied by the coxae, and by a median piece similar to and often called the

sternum. It is, however, something quite different; it is the basal ventral segments of the abdomen pushed forward over the bases of the coxæ. It carries with it the opening of the genital organs, which thus in certain forms appear to issue close to the mouth. This advancement of the abdomen is so pronounced in many of our common forms that the coxæ are crowded at the base, and so appear to radiate from a central point.

Legs are usually long and slender, they consist of a basal joint, the coxa, almost wholly attached to the venter, a small trochanter, a long femur, a short patella, a long tibia, a long metatarsus, and a fairly long tarsus, more or less broken up into several articles. The metatarsi and the tibiae are oft times divided by what are termed false-articulations. The tarsus ends in one or two claws. In front of the first pair of legs are the palpi, which are of five joints, coxa, femur, patella, tibia, and tarsus, the latter often ends in a claw, and the femora sometimes bear spines. Between the palpi are the mandibles, falces, or chelicerae; they consist of a large basal joint, or paturon, and an apical chelate claw.

Male usually has the body either shorter or else more slender than the female, in some cases the male has the tarsus of the palpus more curved than in the female, and in others the male palpi are greatly enlarged. As a rule, the male has longer and more slender legs than the female. In a few cases the male has the hind coxæ enlarged; in many species the males are more spinose than the females. The Phalangida are commonly called "harvest-men," "grandfather greybeards," or "daddy-long-legs." They spin no web, and make no retreat or place of concealment. Usually they move slowly, but some can run rather rapidly; a few, when disturbed, feign death. They commonly feed on living insects which they capture with their jaws, or with the palpi. They appear to have few enemies, and their long legs and often hard and spiny body make them rather undesirable food for birds. Sometimes one finds a species of mite attached to their legs. When handled, they often exude from near the coxæ, a whitish fluid, which in some cases has a disagreeable odor. The eggs are deposited in the fall or early spring, in crevices of the soil, or in wet or decayed wood. The young, on hatching, are in general similar to the adults, but often present differences in the palpi. Probably all of them have but one generation a year.

Phalangids are widely distributed; in the tropics are great numbers of curious species, while others live on the storm-swept peaks of high mountains. Several have been taken in caves; some of these cave forms also occur outside of caves, but in dark situations.

The species do not vary much in appearance; in some of the mountain loving forms the colors vary from dark to light; in some species that have a long north and south range, the northern specimens have much shorter legs, and a less spinose body than specimens from the southern localities.

There are probably about 100 species in the United States; 20 species are known from California. These belong to 16 genera that may be distinguished by the following synoptic table:

1. First ventral segment of abdomen not extending in front of the hind coxæ; hind tarsus with two claws or a compound claw at tip; palpus with the tibia and tarsus depressed; hind legs usually the longest 2
- First central segment of abdomen extends much in front of the hind coxæ; each tarsus with but one simple claw; palpus with tibia and tarsus cylindrical; second pair of legs the longest..... 5
2. Hind coxæ wholly united to the venter, spiracles distinct..... *Cynorta*
Hind coxæ free at apex, spiracles obscure..... 3
3. Two simple claws to each hind tarsus..... 4
A forked claw on each hind tarsus; palpus not as long as body *Sclerobunus*

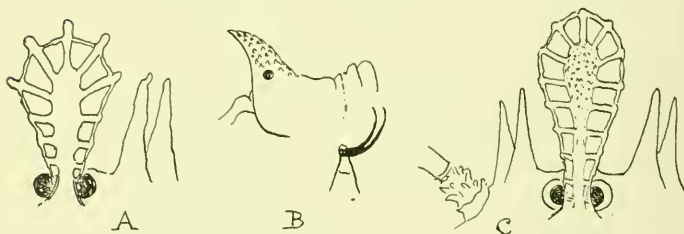


Figure 148. Head details of Phalangida:

A, Eye tubercle of *Ortholasma pietipes*; B, head and claw of *Sitaleina californica*;
C, head of *Ortholasma rugosa*.

4. Eye-tubercle arising from the anterior margin of the cephalothorax; palpi shorter than the body..... *Sitaleina*.
Eye-tubercle arising some distance back from the anterior margin of the cephalothorax; palpi longer than the body..... *Scotolemon*.
5. Last joint of palpus with a claw at the end, this joint usually longer than the preceding joint 10
Last joint of palpus without a claw at tip, this joint much shorter than the preceding joint 6
6. Palpi very short, concealed under a projection of the eye-tubercle..... 9
Palpi long and prominent 7
7. Mandibles longer than body, projecting forward..... *Taracus*.
Mandibles shorter than body 8
8. Fourth joint of palpus much thickened *Phlegmacera*.
Fourth joint of palpus not thickened..... *Nemastoma*.
9. Eye-tubercle with a broadly spatulate projection; two spines each side on the anterior margin of cephalothorax..... *Ortholasma*.
Eye-tubercle with branched projection, a single and club-like spine each side on the anterior margin of cephalothorax..... *Dendrolasma*.

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|---|----|
| 10. Male with the palpus much enlarged and the last joint a little shorter than the preceding joint; female with patella of palpus branched; palpal claw smooth; a row of teeth on each side of coxæ <i>Protolophus</i> .
Last joint of palpus longer than the preceding joint; patella without a branch | 11 |
| 11. Coxæ II much shorter at base than I or III; femora and tibia I and III enlarged
Coxæ II reaching as far down as base as I or III; femora and tibia I and III not enlarged | 12 |
| 12. Eye-tubercle spinose; legs unmarked
Eye-tubercle smooth; legs banded | 13 |
| 13. A group of spinules on the anterior margin of the cephalothorax; legs rather short
No such spinules | 14 |
| 14. Palpal claw denticulate; a small tooth at base of palpus beneath; legs very long and slender, in adult with teeth along edge of some of the coxæ
Palpal claw smooth; legs usually shorter | 15 |
| 15. Legs slender; femur I longer than width of the body
Legs shorter, femur I not as long as the width of the body | |

Cynorta

Of this genus there is but one species known from California.

Cynorta bimaculata Bks.

This is a very hard-bodied form, yellow-brown in color, with two large, pale yellow spots on the dorsum of abdomen; there are no spines or tubercles on the dorsum (Eastern species have two spines or tubercles). It is only known from San Diego.

Sitalcina n. gen.

But one species described from California.

Sitalces californica Bks.

Color pale yellowish, legs whitish toward the tips. Eye-tubercle large, on the anterior margin of the cephalothorax, roughened and granulate. Dorsum of abdomen finely granulate, and with six transverse rows of larger granules. Third joint of palpus with two projections above and one below; fourth joint with two projections below, several small ones above; fifth joint with two projections below. Length 2 to 3 mm. From Marin County, and Mt. Shasta.

Sclerobunus

Two species occur on the West Coast, one not yet recorded from California, but will doubtless occur in the northern part of that state.

- | | |
|-------------------------------------|-------------------|
| 1. Color red, tips of legs black | <i>robustus</i> . |
| Color brown, tips of legs yellowish | <i>brunneus</i> . |

Sclerobunus robustus Packard

The anterior femora have three or four little tubercles, each tipped with a stiff hair; each of the four posterior claws have one large projection each side; the male has the second joint of palpus more gibbous than in the female. Length 3 to 4 mm. Known from Mt. Shasta region, also Washington and Colorado.

Sclerobunus brunneus Bks.

Dorsum and legs have many little tubercles, each tipped with a stiff hair; each of the four posterior claws have two curved projections each side; second joint of palpus not as large as in *S. robustus*. Length 2 mm. From Washington.

Scotolemon

The species of this genus often live in caves, and such is the habitat of the one known Californian species.

Scotolemon californica Bks.

No eyes, eye-tubercle not prolonged into a spine. Pale yellowish, dorsum of abdomen rather darker. Dorsum with small pointed granules, those on the abdomen arranged in transverse rows; venter and coxæ with similar granules, often tipped with a hair. Palpi large and stout, the joints with pointed processes; legs slender, finely granulate. Length 1.8 mm. From Alabaster Cave, Calif.

Taracus

Two species are known from California.

1. Body with many small projections, each tipped with a hair... *spinus*.
Body without hair-bearing projections..... *pallipes*.

Taracus spinus Bks.

Pale yellowish, claws of mandibles reddish-brown; cephalothorax smooth; just behind the eye-tubercle is a median spine flanked each side by an oblique row of tubercles. Dorsum and venter of abdomen closely covered with projections, each with a stiff black hair at tip, those on dorsum are curved. From Southern California.

Taracus pallipes Bks.

Rather brownish above, mandibles dark; cephalothorax and abdomen smooth, without projections, the spine behind the eye-tubercle is not flanked each side by a row of tubercles. From Mt. Shasta, Calif., and also in Washington (Olympia). (Fig. 149.)

Phlegmacera

This genus is readily known by the swollen joints of the palpi, the last joint being very small; one species has been taken in California.

Phlegmacera occidentalis Bks.

This is pale in color, with a large brown spot on the cephalothorax and over the base of the abdomen; legs are brownish, with white marks on base and tip of femora, tips of patellae and tibiae, and fainter ones on metatarsi and tarsi. There is a pair of erect spines on base of abdomen, and in the male the basal joint of the mandibles is prolonged upward. From Santa Clara County, Calif., and also Washington.

Nemastoma

One species of these tiny Phalangids occurs in California; the palpi are slender throughout.

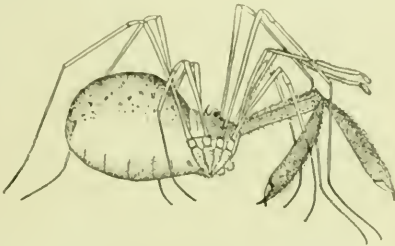


Figure 149. *Taracus pallipes*.

Nemastoma modesta Bks.

Dorsum brown to red-brown; legs pale. From the broad, low eye-tubercle there extends obliquely backward a row of tubercles with flat tops broader than the base, on the base of abdomen is a transverse row connecting the rows from the eye-tubercle; on dorsum of abdomen are four small submedian white spines or processes; legs and palpi finely hairy. Mt. Shasta, Claremont, and Santa Clara County.

Ortholasma

Two species are found in California:

1. Process of eye-tubercle with six or more openings each side; femora and tibiae not banded *rugosa*.
- Process of eye-tubercle with about 4 or 5 openings each side; femora and tibiae banded *pictipes*.

Ortholasma pictipes n. sp.

Body brownish, a faint median pale stripe on abdomen; the process of eye-tubercle whitish; legs dark, two bands on femora and tibiae (except leg II), one near middle, one near tip; leg II with band on femora toward tip, tibia mostly pale; eye-tubercle with only four or five openings each side, and the spikes projecting beyond the connecting rim; two spine-like processes each side on front of cephalothorax; cephalothorax roughened mostly in two curved

rows behind, and on lateral edge; abdomen with connecting ridges, which form five longitudinal rows of areas, from the connections of the median row there are slight tubercles; around hind border is a row of rather clavate tubercles, and the posterior slope of abdomen is transversely roughened, legs roughened, the trochanters not so much as in *O. rugosa*; large processes at tip of coxæ III and IV as in *O. rugosa*; venter also roughened as in *O. rugosa*. From Humboldt County, Calif., June 24, and Mt. Wilson, Sept. (Bradley) kindly given me by Prof. J. H. Comstock.

Ortholasma rugosa Bks.

Cephalothorax with a pair of spines on each side of anterior margin; projection of eye-tubercle spatulate; dorsal surface with intersecting ridges which give rise to tubercles and processes; on the posterior margin is a row of simple spines, the larger ones near the middle; the coxæ and trochanters roughened. Common in Southern Calif., Claremont; San Diego, Los Angeles, and Alameda Counties.

Dendrolasma

But one species is described.

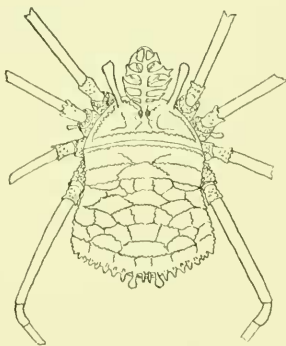


Figure 150. *Dendrolasma mirabilis*.

Dendrolasma mirabilis Bks.

Cephalothorax has a single clavate process each side on anterior margin; projection of eye-tubercle is branched; the dorsum has intersecting lines forming a definite pattern; on posterior margin is a row of clavate processes, each with a slight basal projection on each side; coxæ and trochanters roughened, on coxæ I and II at tip is a connected row of tubercles, and on coxæ II one of these tubercles is greatly enlarged. From Coulterville, Mariposa County; also Washington. (Fig. 150).

Protolophus.

Two species are known from California; the *P. tuberculatus* very much more common than the other.

1. Abdominal tubercles unarmed *tuberculatus*.
 Abdominal tubercles with a few apical spines *singularis*.

Protolophus tuberculatus Bks.

Gray to brownish, more or less mottled with brown; abdomen often red-brown, with a broad median dark stripe or vase-mark; coxæ brownish, trochanters yellowish, rest of legs reddish or yellowish brown. Specimens come from Marin County, Santa Clara County, Los Angeles, Claremont, Haywards, Santa Catalina Island, and Santa Rosa Island. (Fig. 151.)

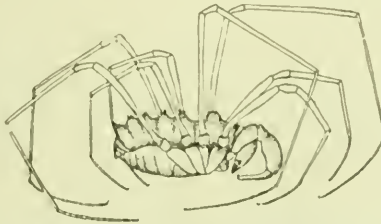


Figure 151. *Protolophus tuberculatus*.

Protolophus singularis Bks.

Abdominal tubercles have from two to four spines; the anterior margin of cephalothorax is more spinose, and the palpi are more enlarged in the male, the second pair of legs more slender. From near San Diego.

Eurybunus

The legs are short, the femora and tibia of legs I and III thickened. Two species are described from California.

1. Body smooth; leg IV nearly as long as II *brunneus*.
 Body with transverse rows of spinules; leg IV much shorter than II *spinosus*.

Eurybunus brunneus Bks.

Dorsum brown, margin of abdomen narrowly white, coxæ, trochanters, and part of femora yellowish, a band near tip, femora brown, the extreme tip whitish; base of patella brown, tip white; middle of tibia brown, base and tip white; same with the metatarsus; tarsi brownish; palpi and mandibles yellowish. Southern California.

Eurybunus spinosus Bks.

Grayish brown above, a black mark on each side of base of abdomen; femora I and III brown, with a pale ring on middle; tibiæ I and III brown, mottled with pale; femora and tibiæ II and IV whitish, with irregular brown

spots; all metatarsi pale; tarsi ringed with brown at the false articulations; palpi pale, spotted with brown, black at tip. Los Angeles, Calif.

Globipes

But one species is known.

Globipes spinulatus Bks.

Reddish brown, dorsum somewhat mottled with brown, base of legs yellowish, rest reddish; cephalothorax and abdomen smooth; eye-tubercle low and with few spinules above; femur II longer than the body, and more than twice as long as femur I. From Southern California.

Leuronychus

Two species are known.

1. A brown dorsal stripe *pacificus*.
 No dorsal stripe *parvulus*.

Leuronychus pacificus Bks.

Whitish to grayish, with a broad median brown stripe; the patellæ of legs brown, lineate with white; trochanters brown; spinules on venter and coxæ. From Olympic, Wash., and Mt. Shasta, Calif.

Leuronychus parvulus Bks.

No stripe on dorsum, but a spot on abdomen in form of a Greek cross; patellæ not lineate with white; trochanters pale; only stiff black hairs on venter and coxæ. From Olympia, Wash., probably occurs in northern California.

Leptobunus

But one species known from California.

Leptobunus californicus Bks.

Whitish above, mottled with brown and black, the vasa indefinite; femur I shorter than the body, tips of coxæ pale, tibia I with two dark bands; apical brown rings on other joints, palpi not lineate with brown. Southern California., Los Angeles. Another species, *L. borealis*, is known from Alaska; it has the tips of coxæ dark, one band on tibia I, and the palpi lineate with brown.

Nitopus

One species is recorded from California.

Nitopus californicus Bks.

Grayish above, indistinctly mottled with white and brown; femora and tibiæ with brown bands near base and tip; tibia II is much longer than metatarsus II, one false articulation in metatarsus I. From Los Angeles.

Another species *N. dorsalis*, with a white median stripe, is known from Alaska; the tibia II is not longer than metatarsus II, and there is no false articulation in metatarsus I.

Liobunum

To this genus belongs the excessively long-legged forms. Many species are known from the eastern United States, and from Europe, but only two are so far recorded from the West Coast, one of these, however, is very common.

1. Two large yellow spots over the junction of the cephalothorax and abdomen *bimaculatum*
 No large yellow spots on junction of the cephalothorax and abdomen *exilipes*.

Liobunum exilipes Wood

Adult males are dark brown, with some scattered small pale spots, a larger pale spot in front of the eye-tubercle, and the palpus, except the tarsus, is black. The female is paler, and, when mature, shows a dark vase mark on the dorsum. Young are pale, mottled with brown and black. In both sexes the trochanters are darker than the coxæ, and the tips of the femora and tibiae are more or less distinctly paler than the rest of the joint. Specimens have been examined from Mt. Shasta, Santa Clara County, Los Angeles, Claremont, Santa Rosa Island, and it also occurs in Washington State.

Liobunum bimaculatum Bks.

This species has still longer legs than *L. exilipes*; it is dark brown in color, with two prominent yellow spots, and the trochanters are no darker than the coxæ. I have seen it only from near San Diego.